Winter Wildcat — *J. P. Cowan*

The Humble Way

OCTOBER-NOVEMBER-DECEMBER, 1960

Steel skeleton of new Humble headquarters rises 30 floors above streets of downtown Houston. Structural framework will reach its 44-story top in early 1961. Building is scheduled for occupancy about mid-1962.

The Humble Way
October-November-December 1960
Vol. XVI No. 2

HUMBLE'S NEW ORGANIZATION

THE tremendous task of perfecting the organizational framework for coordinating the new Humble Company's widespread operations was brought to completion in mid-December and was announced to employees and the public.

Developed after almost a year of intensive study, the operating blueprint in essence provides the following:

- A headquarters group in Houston, composed of the Board of Directors and various executive and administrative units.
- Separation of the United States into four geographic Regions for the integrated management of exploration, production, and marketing operations.
- The establishment of three functional Divisions for the nation-wide management of manufacturing operations, marine transportation, and petrochemical marketing activities; and continued operation of a pipe line subsidiary.

The headquarters group in Houston is made up of four levels of management with necessary staff units: (1) *Corporate Management,* composed of the nine-man Board of Directors; (2) *Executive Management,* the Executive Committee whose membership is drawn from the Board of Directors; (3) *Coordination and Planning Management,* which includes directors and functional vice presidents for Exploration and Production; Supply, Transportation, and Manufacturing; Marketing; Financial; and Chemicals and Research; and (4) *Advisory and Service Management,* which includes the following departments: Controller's, Tax, Law, Secretary's, Employee Relations, Treasury, Public Affairs, and Economics and Planning.

Operations Management, or field management, includes eight units of the Company: four Regions, three Divisions, and one subsidiary company. Regional offices are in Houston for the Southwest Region; in New Orleans for the Southeast Region; in New York for Esso Standard, Eastern Region; and in Tulsa for the Central Region.

The three Divisions are Manufacturing, Marine, and Enjay Chemical Company; the subsidiary is Humble Pipe Line Company. Offices for Manufacturing, Marine, and the Pipe Line Company are in Houston; for Enjay Chemical Company, in New York.

Each of the four Regions is managed by a vice president, assisted by a general manager. In Manufacturing the operating head is a vice president; in Marine he is a manager; in petrochemicals the president of Enjay Chemical Company is the chief executive; in Humble Pipe Line Company the president is chief executive.

In explaining the reasons for going to the regional organization President Morgan J. Davis said:

"To meet the challenge of tomorrow's problems within our expanded company, we must develop executives more fully conversant with petroleum problems from production to marketing. The regional type organization will develop men who are familiar with more than one phase of our operations before they enter company-wide administrative positions.

"In addition, our production, exploration, and marketing operations all encounter common administrative problems in dealing with the public, the government, and the industry in a given geographical area which may be better coordinated on a regional basis."

This new organization blueprint clearly points up that Humble's Board of Directors is delegating the broad responsibility and authority for managing the Company's operations from headquarters to the regional and division offices. Headquarters staff at Houston, and the regional and division office staffs, are to be kept as small as possible, according to the plan. Field operations are given maximum authority and responsibility consistent with the sound management of investments and nation-wide policy coordination.

As chief executive officer of a region, division, or subsidiary company, each operations officer is accountable to executive management for all assigned activities in his geographic region or operations division and has responsibility for competent and profitable conduct of the Company's business, including the efficient use and development of manpower.

Responsibilities of regional officers differ from those of division and subsidiary company chief executives in one respect. Each regional officer is the spokesman and representative of the Company for his assigned territory, and

assists the officers of another unit who may have operations within his region on public, governmental, and industry relations matters.

Functional and services counterparts of the Headquarters departments in the Regions and Divisions—such as Production, Exploration, Law, Accounting, Employee and Public Relations—are accountable to their Regional or Divisional officers; however, on professional or technical matters, they are accountable to their headquarters counterparts for the proficiency of their work.

Although the new organizational structure has been set up, the complete transition understandably will not be immediate. Considerable time will be needed to develop regional organizations, and thereafter area and district organizations within each region. It is anticipated that all changes will be made gradually.

Management has emphasized in all announcements that the organizational changes under the new plan will call for a minimum of relocation of people. For most employees there will be no change in work location or type of work; the greatest changes involved will be in new reporting lines—greater emphasis on regional and division offices.

Appointments to all major executive posts have been made, and the necessary steps for activating the new organizational programs will begin early in 1961 and will continue throughout the year.

Activation of the newly created regions will mean discontinuance of the four Divisions under which operations have been carried out in 1960 and will result in the following shifts:

• The Oklahoma-Pate Division will become a part of the marketing organization of the Central Region.

• Tennessee, Arkansas, Louisiana, and the Carolinas, formerly in the Esso Standard Division, will now be included in the marketing territory of the Southeast Region.

• The Southern Area of the Carter Division will join the Eastern Area of the Humble Division to become the exploration and production organization of the Southeast Region.

• The Billings Refinery of the Carter Division and Baytown Refinery of the Humble Division have joined with the seven plants of the Esso Standard Division to become the Manufacturing Division.

• Exploration and production activities now conducted by the Humble Division in the Four Corners Area of New Mexico and Arizona and in the Anadarko Basin of the Texas Panhandle will become the responsibility of the Central Region.

• Enjay Chemical Company has been a division of the Humble Company and is not affected by the new plan.

Actual mechanics of many other lesser adjustments will take time, but the new organization will be activated gradually as administrative details can be worked out.

Humble's management organization is presented in charts and pictures on the following pages.

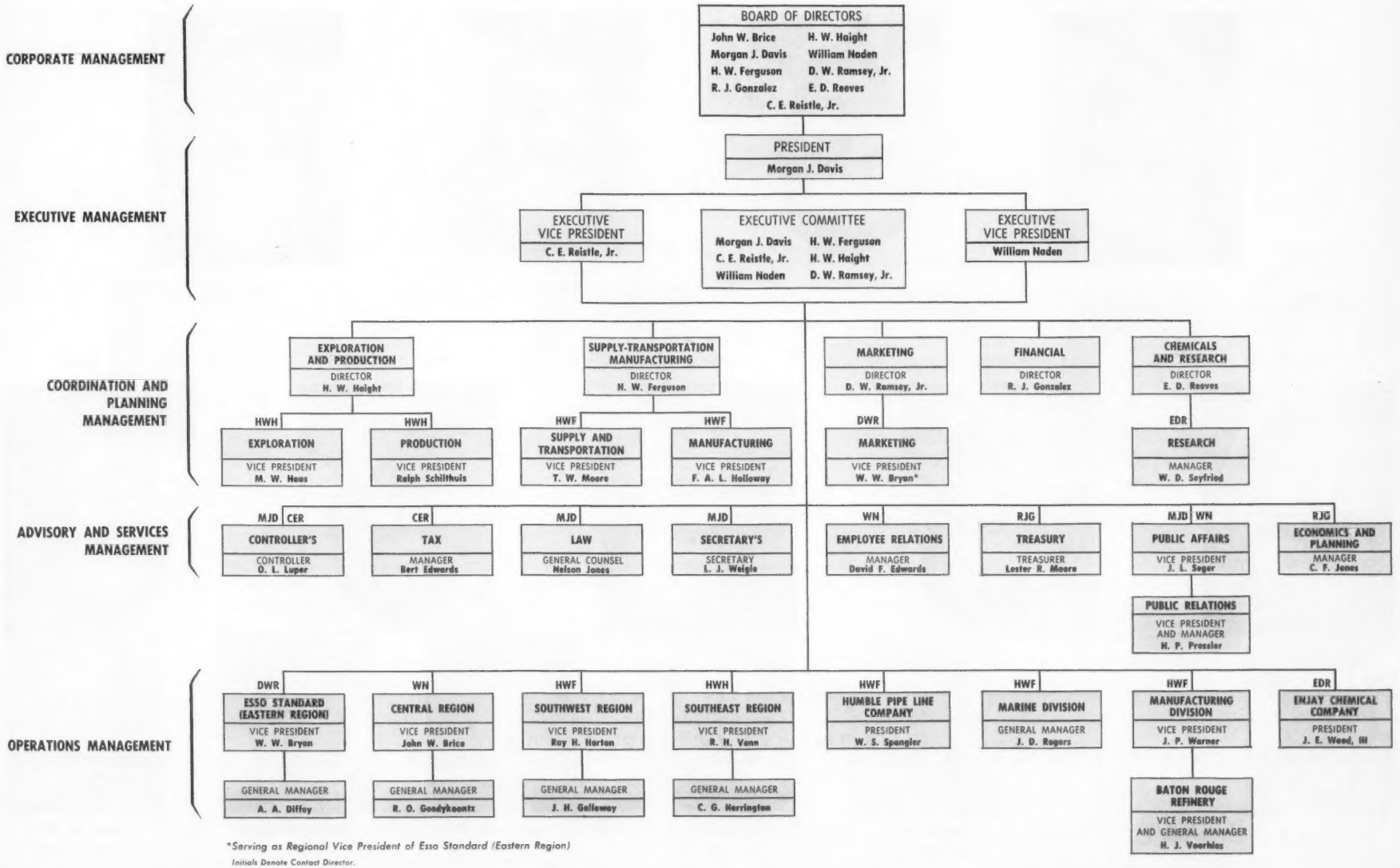
HUMBLE OIL & REFINING COMPANY

REGIONAL BOUNDARIES

EXPLORATION — PRODUCTION — MARKETING

HUMBLE OIL & REFINING COMPANY

MANAGEMENT ORGANIZATION CHART



Serving as Regional Vice President of Esso Standard (Eastern Region)

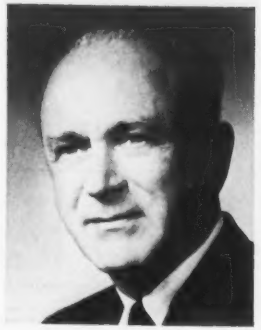
Initials Denote Contact Director.

CORPORATE MANAGEMENT

BOARD OF DIRECTORS

John W. Brice

Morgan J. Davis



H. W. Ferguson

R. J. Gonzalez

H. W. Haight

William Naden

D. W. Ramsey, Jr.

E. D. Reeves

C. E. Reistle, Jr.

EXECUTIVE MANAGEMENT

PRESIDENT
Morgan J. Davis

EXECUTIVE VICE PRESIDENT
C. E. Reistle, Jr.

EXECUTIVE COMMITTEE

Morgan J. Davis
C. E. Reistle, Jr.
William Naden
H. W. Ferguson
H. W. Haight
D. W. Ramsey, Jr.

EXECUTIVE VICE PRESIDENT
William Naden

COORDINATION AND PLANNING MANAGEMENT

EXPLORATION AND PRODUCTION

H. W. Haight
DIRECTOR

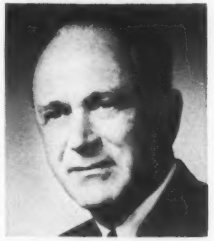
EXPLORATION

M. W. Haas
VICE PRESIDENT

PRODUCTION

Ralph Schilthuis
VICE PRESIDENT

SUPPLY-TRANSPORTATION MANUFACTURING



H. W. Ferguson
DIRECTOR

SUPPLY AND TRANSPORTATION

T. W. Moore
VICE PRESIDENT

MANUFACTURING

F. A. L. Holloway
VICE PRESIDENT

MARKETING

D. W. Ramsey, Jr.
DIRECTOR

MARKETING

W. W. Bryan
VICE PRESIDENT

FINANCIAL

R. J. Gonzalez
DIRECTOR

CHEMICALS AND RESEARCH

E. D. Reeves
DIRECTOR

RESEARCH

W. D. Seyfried
MANAGER

ADVISORY AND SERVICES MANAGEMENT

CONTROLLER'S

O. L. Luper
CONTROLLER

TAX

Bert Edwards
MANAGER

LAW

Nelson Jones
GENERAL COUNSEL

SECRETARY'S

L. J. Weigle
SECRETARY

EMPLOYEE RELATIONS

David F. Edwards
MANAGER

TREASURY

Lester R. Moore
TREASURER

PUBLIC AFFAIRS

J. L. Seger
VICE PRESIDENT

PUBLIC RELATIONS

H. P. Pressler
VICE PRESIDENT AND MANAGER

ECONOMICS AND PLANNING

C. F. Jones
MANAGER

OPERATIONS MANAGEMENT

ESSO STANDARD (EASTERN REGION)

W. W. Bryan
VICE PRESIDENT

A. A. Diffey
GENERAL MANAGER

CENTRAL REGION

John W. Brice
VICE PRESIDENT

R. O. Goodykoontz
GENERAL MANAGER

SOUTHWEST REGION

Ray H. Horton
VICE PRESIDENT

J. H. Galloway
GENERAL MANAGER

SOUTHEAST REGION

R. H. Venn
VICE PRESIDENT

C. G. Herrington
GENERAL MANAGER

HUMBLE PIPE LINE COMPANY

W. S. Spangler
PRESIDENT

MARINE DIVISION

J. D. Rogers
GENERAL MANAGER

MANUFACTURING DIVISION

J. P. Warner
VICE PRESIDENT

BATON ROUGE REFINERY

H. J. Voorhies
VICE PRESIDENT
AND GENERAL MANAGER

ENJAY CHEMICAL COMPANY

J. E. Wood, III
PRESIDENT

Other Recent Developments . . .

IN ADDITION to the announcement of the major organization changes described on the preceding pages, a number of other significant developments have taken place in the Humble Company since our last report in The Humble Way. The Company has:

• Opened its first service stations in three new marketing states—Ohio, Oklahoma, and California.

• Reached an agreement with Monterey Oil Company under which Monterey, early in January, sold substantially all of its business and assets to Humble.

• Announced a revised Company-wide program of employee benefits (see story on pages 30-31).

• Announced plans to expand facilities at Baytown Refinery to almost double the refinery's benzene and toluene production capacity.

The formal opening of Humble's first service station in Ohio took place at Youngstown in November, and was described by Ohio Division Manager James T. Outz as "successful beyond expectations." The Company planned to have 13 more new stations completed and ready for opening in Ohio soon after the first of the year. Six of these are in Youngstown, two in nearby Alliance, three in Columbus, and two in Zanesville. The Ohio Division is also proceeding with plans for an expanded program of service station construction in the state during 1961.

A few weeks before the Ohio opening, Humble began marketing operations in the state of Oklahoma. The Company's first retail outlet to open for business there is Whitten's Service Station at Lawton, in southern Oklahoma. Lindsey H. Whitten, operator of the station, has been named Hum-

Advertisements such as these, appearing in color in national magazines, are reminding millions of Americans of Humble's new role as the nation's leading energy company, carrying on marketing operations from coast-to-coast under the familiar "Happy Motoring" sign.

Climaxing season of NCAA football telecasts, Humble shared sponsorship of telecasts of four post-season bowl games: Bluebonnet, pictured above, Gator, Cotton, and Orange Bowls.

ble's jobber in the Lawton area, where three more service stations were expected to be completed and ready for opening early in 1961.

A three-day open house celebration at 35 new Enco service stations in the Los Angeles area marked Humble's formal marketing entry into California in late November. These new Humble outlets fly the Enco brand name in an oval over their driveways, and sell Enco and Enco Extra high energy gasolines. The stations were acquired by Humble in recent months from two West Coast firms—Major Gas Stations, Inc., and Shipkey Oil Company. H. W. McKim has been named manager of Humble's newly created Los Angeles marketing district.

While the Company thus expanded its marketing operations into new areas of the country, continuing efforts were underway to strengthen public recognition of Humble as a unified nationwide organization and "America's Leading Energy Company." The Humble name, spelled out in bright red plastic letters, now appears on most of the Company's more than 30,000 retail outlets. A uniform "Happy Motoring" credit card has been adopted in all Divisions of the Company, the only regional differences being in the use of the Division ovals. In nationwide NCAA football telecasts and advertisements in national magazines, Humble continued to tell its story to the people of America, while the cheery oil-drop trade-mark "Happy" beamed his welcome from thousands of outdoor signs scattered over most of the United States.

On October 11, an announcement was made jointly by Howard C. Pyle, president of Monterey Oil Company, and Morgan J. Davis, president of Humble Oil & Refining Company, to the effect that Monterey had agreed to sell substantially all of its business and assets to Humble. These assets consist of producing properties only. Monterey's principal production is located in the state of California (where Humble is not one of the leading producers), and in West Texas. Monterey also has some production in the states of Louisiana, Wyoming, and New Mexico.

The transaction was completed early in January, following approval of the proposal by Monterey's stockholders.

Three-day open house celebration at this and 34 other newly converted service stations in the Los Angeles area marked Humble's marketing entry into the state of California in November. Company has had exploration, production operations in California for years.

Humble has now taken over the Monterey organization and employees, and will continue operation of the former Monterey properties for the immediate future as the Monterey Division of Humble Oil & Refining Company, under the administration of the Humble Division.

The planned expansion of facilities at Baytown Refinery will increase the production of benzene from 30 million gallons to 55 million gallons a year, and toluene capacity will be increased from 32 million to 55 million gallons a year. Humble also has an annual production of 25 million gallons of benzene at its Baton Rouge Refinery, in Louisiana. Sales of benzene and toluene are handled by Enjay Chemical Company, a Division of Humble Oil & Refining Company.

In addition to the executive appointments recorded in the article on Humble's new organization, the following have also been announced:

Edwin R. Smith has joined the company's headquarters staff, effective January 1, as assistant to director for marketing, D. W. Ramsey, Jr. Mr. Smith formerly was executive vice president of the Oklahoma-Pate Division in Chicago.

Frank Gaines, Jr., has joined Humble's headquarters organization in Houston as coordinator of executive development and organization planning. In his new position, which is in the Secretary's Department, Mr. Gaines is concerned with the coordination and development of these activities on a Company-wide basis. Before assuming his new duties on October 1, he was production manager of the Carter Division's Eastern Area, with headquarters in Mattoon, Illinois.

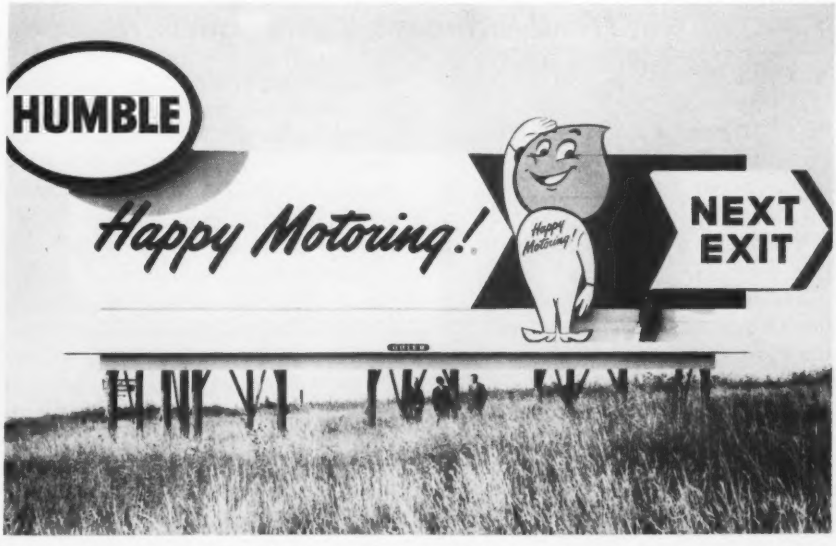
E. E. Hunter has become assistant controller of Humble Oil & Refining Company, effective December 15, taking the place of W. C. Jennings, who transferred to Standard Oil Company (New Jersey). Mr. Hunter had been serving as controller of the Humble Division.

John M. Sprague has become Humble's Washington (D. C.) representative. He formerly served as controller, area manager, and regional vice president of Carter Oil Company, but for the past two years has been Deputy Assistant Secretary of Defense in the Defense Department in Washington.

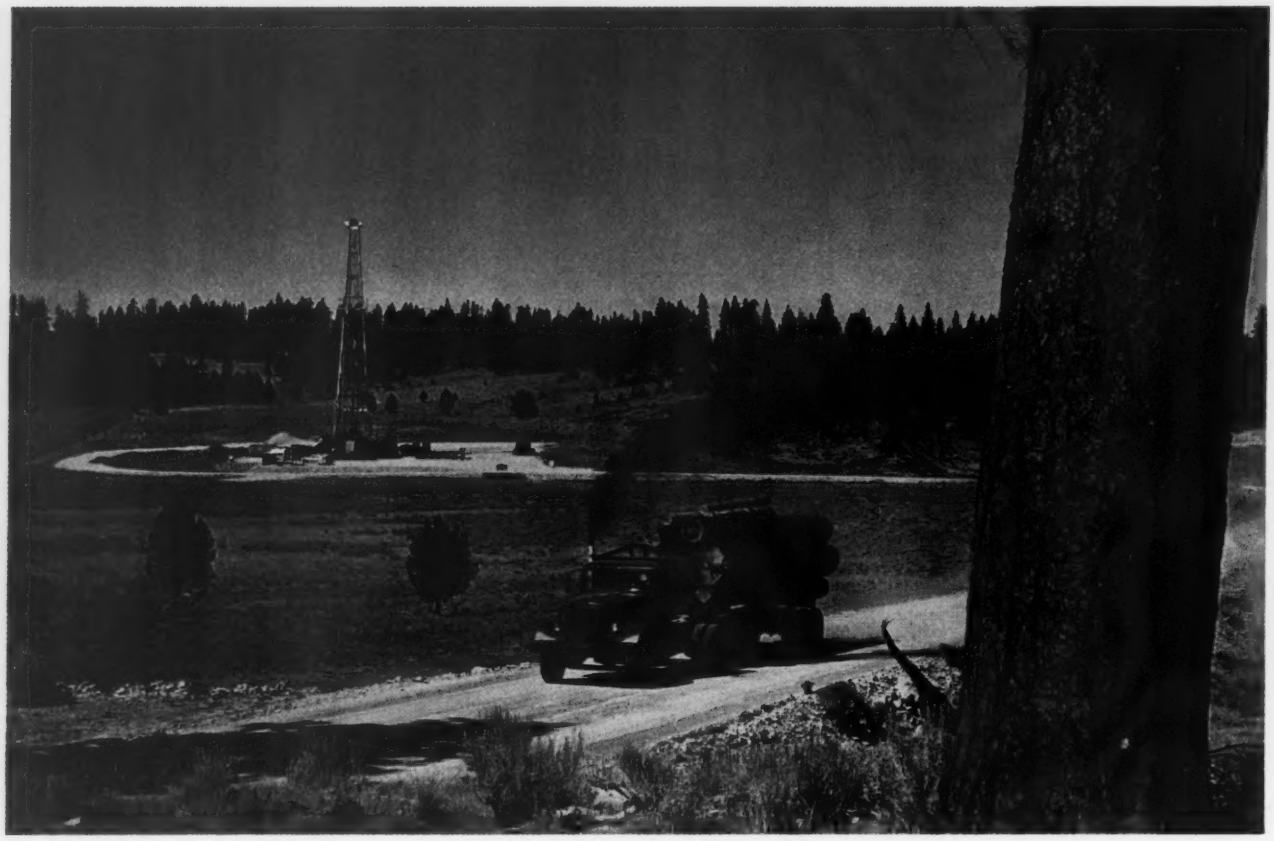
Associated with Mr. Sprague is William R. Veal, who is serving as attorney for Humble's Washington office. Mr. Veal, who was formerly Carter's area attorney in Shreveport, has spent the past year in the Washington office of Standard Oil Company (New Jersey).

First Humble customer in Ohio, Deane Fredricks, right, is greeted in Youngstown by four happy Humble people: left to right, Sam Smith, H. T. Menges, O. G. Sconza, L. A. Tierney.

New credit cards like these are now being issued to customers throughout the nation.



Travelers on many of the nation's super-highways will find "Happy Motoring" signs such as this reminding them that Humble service and products are available at a station just ahead.



At Grasshopper Flat, a logging truck rolls past a temporary addition to the Oregon landscape: the skeletal frame of a jackknife drilling rig. Here in the Fremont National Forest, nearly a mile above sea level, Humble made the 92nd attempt to find oil in Oregon.

TIMBER COUNTRY WILDCAT

In Oregon, one of the frontiers of petroleum exploration, Humble climaxes a seven-year search with a deep test well

A FEW weeks ago, one of the Pacific Northwest's leading newspapers devoted nearly half a page in its Sunday edition to an article headed: "Oil Company Gambles 900-1 Shot in Oregon."

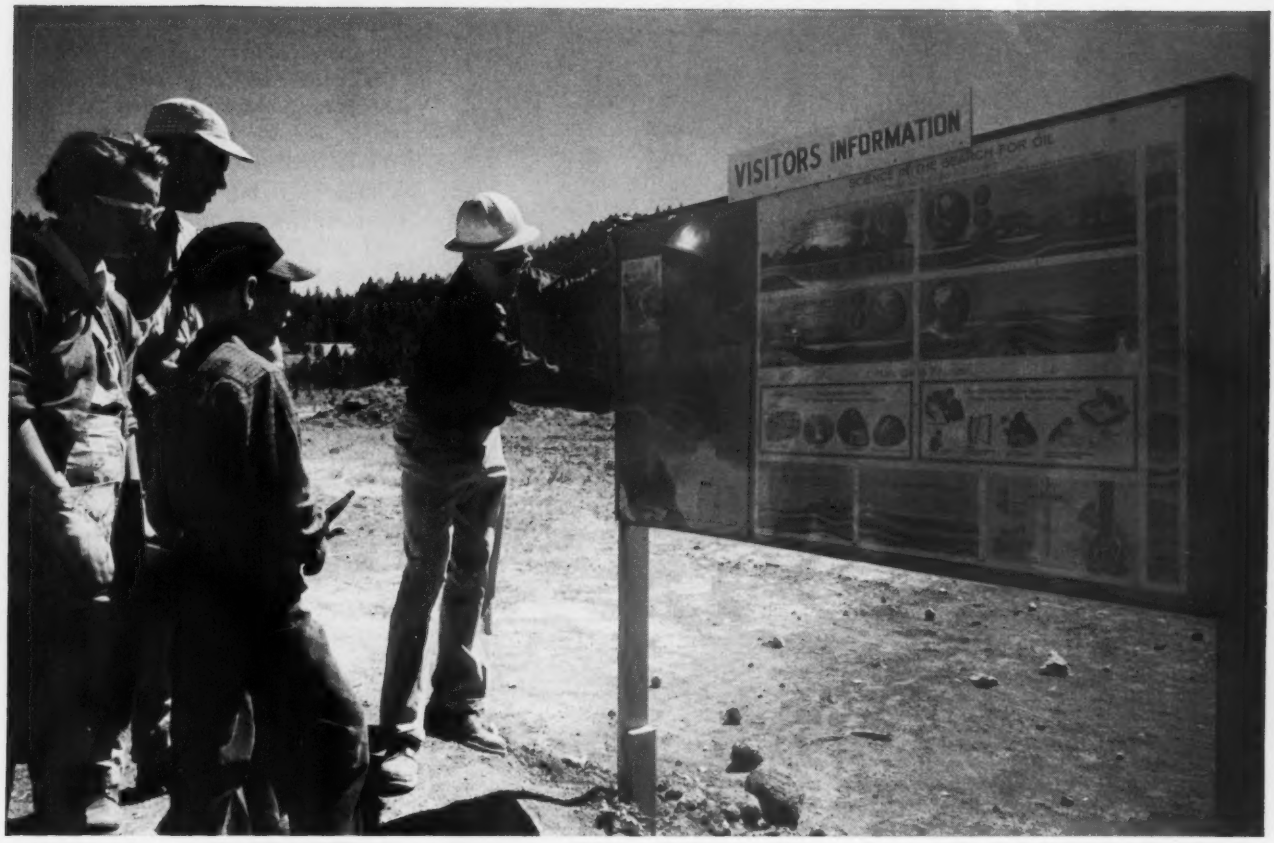
The oil company was Humble, and the chancy business in question was the Company's first drilling venture in Oregon—a deep test in the logging country north of the small town of Lakeview. "If you have ten cents worth of interest in the economy of Oregon," the story went on, "you are holding your breath today with the boys on that huge drilling rig at the headwaters of the Chewaucan River."

Today, for the time being at least, everyone is breathing again. The most recent buzz of excitement over Oregon's prospects for a long-sought oil discovery has largely died down.

The reason is that late in October—exactly three months after Humble spudded its wildcat at Grasshopper Flat, a pine-skirted clearing in the Fremont National Forest—the well was plugged and abandoned. Thus, with these traditional rites of the "suitcase sand," ended the 92nd attempt to find oil beneath the volcanic crust that blankets most of Oregon—and was recorded the 92nd dry hole.

In a spirit reminiscent of Lewis and Clark, the geologist and wildcatter have been on the trail of oil in Oregon for more than half a century. (The state's first well was drilled in 1902 in Malheur County.) The story of Humble's part in this long search spans only the last seven years, but it epitomizes many of the risks and problems encountered in the earlier exploratory efforts. It also has some unusual aspects of its own.

Humble's geologists began their study and reconnaissance of Oregon's oil potential in the fall of 1953. But they were fully aware, even then, that oil would not be easy to find in the Pacific Northwest.



Production geologist uses visual aids on bulletin board to brief visitors on some of the difficulties encountered in exploring for oil in virgin territory. The two questions asked most frequently were: How deep are you now—and how soon do you expect to strike oil?

For in the murky past, millions of years ago, this area had seethed with volcanic activity. Eruptions far mightier than those of Vesuvius had buried many of the older formations under avalanches of lava and volcanic dust and debris. Even more enormous outflows of lava had escaped through fissures and streamed across what is now most of Eastern Oregon and parts of four neighboring states. These fiery floods left only a few sedimentary outcrops exposed—scanty clues to oil but exceedingly difficult to trace through the thick layers of volcanic rock.

A history of volcanic action, however, does not necessarily rule out the possibility of petroleum. It is what lies below, in the hidden marine sediments, that counts. In Sicily, for example, one American company tried drilling through a bed of lava near Mount Etna and brought in an excellent oil field.

With Eugene, home of the University of Oregon, as a base, Humble's exploration team—seldom more than six in number—buckled down to the task of unearthing the secrets of Oregon's geology. Very little of the earlier geologic spadework, it developed, was of value to the oil hunter. It was almost a case of having to start from scratch.

For the first three or four years, then, the small task force spent its winters delving deep into the technical literature, studying aerial photographs and mosaics, and poring over data collected on field trips. During the warmer months, two-man parties took off in jeeps to work on surface geology. At times, geophysical tools such as the gravity meter and aerial magnetics were also put to use.

The geologists focused their attention on Eastern Oregon, or roughly the area from the crest of the Cascades to the Idaho border. Part of this region is covered with magnificent forests, with giant stands of fir, pine, and spruce. Toward the east and southeast, however, the towering evergreens thin out into semi-arid ranchland and sagebrush plains and, finally, yield to the desert.

On their trips into the sparsely populated country, Humble's "rock hounds" carried the usual equipment for work in out-of-the-way places:

Mud engineer works on log while geologist studies well cuttings through microscope.

Company landmen add another piece of information to map showing mineral ownerships in southern Oregon. Nearly ten months of work went into making these jigsaw-like maps.

sleeping bags, cots, tents, and food supplies. Only occasionally was this emergency gear needed. "The worst hazard," commented one geologist, "was running out of gas. Once we had to walk about 15 miles looking for a service station."

Paradoxically, the areas of easiest access—the timber country with its many Forest Service roads—often proved the most difficult to work in. The reason: it was hard to see the rocks for the trees. In the desert, the situation was reversed. Intriguing outcrops stood out in plain view, but there were very few roads that one could use to reach them. None of the field parties ever lost their bearings in trekking across these lonely wastelands, but—to paraphrase Daniel Boone—it was not too unusual to find oneself bewildered for a spell.

From these far-ranging field trips came a great deal of geologic information. As this was collected and sifted for clues, one area began to whet the interest of Humble's exploration people more than any other. That was south-central Oregon. In 1958, it was decided to start a leasing program here so a call went out to the Company's landmen.

Like the geologists, the landmen ran into some problems. One of the most time-consuming was the complete lack of maps showing the ownerships of mineral rights. To get these essential tools of their profession, the landmen called upon the assistance of the Company's civil engineers and scouts, and together they constructed their own—a job that took nearly ten months of painstaking research in government land offices and county courthouses. It was thought at first that a preponderance of large tracts under single ownerships would expedite the map-making, but this hope soon faded.

In Lake County, for example, the landmen found themselves in something of a legal maze. Early in the 1900's, they learned, a real estate company had bought a large ranch and additional lands, mostly in Goose Lake Valley, and divided these holdings into some 13,000 ten-acre tracts, plus a few 20 and 40 acre tracts. The real estate people then took four sections of land near the town of Lakeview and divided this property into about 13,000 town lots. They hawked these lots to venturesome investors throughout the Midwest. With each lot went one of the ten-acre tracts in the valley, its exact location to be determined by a drawing.

"In 1909," one landman reported, "Lakeview had 3000 resident taxpayers and more than 13,000 non-resident taxpayers."

Over the years, many of these armchair pioneers let their land go for taxes, and others sold out. By the time Humble's leasing program got under way, there were only about 800 of these ten-acre tracts still intact. Tracing the owners of these proved to be no small task, but eventually they were all tracked down—one all the way to South America.

Another problem cropped up when Humble's landmen first tried to get a lease on state lands in the Summer Lake game management area. Oregon justly prides itself on its wildlife, and it is intensely conservation-minded. It is still a state where, in just one day, a crack sportsman can get his legal limit of deer, trout, bass, pheasant, quail, ducks, and geese. Some officials feared that oil operations might

damage the breeding grounds of the state's waterfowl.

"When we first approached them," one Humble man recalls, "about all they remembered about the oil industry was Spindletop and the East Texas field—with oil spraying the sky and wells so close together a bird couldn't fly through."

But once the facts about today's oil operations were presented, and after Humble had agreed to drill directionally when and if it decided to test the area, the Summer Lake lease won state approval.

There was also an occasional hitch because of the unfamiliarity of many Oregon landowners with the mechanics of leasing. When one Oregonian was asked if he was interested in an oil lease, he said: "We can't afford it. We're barely paying our taxes now." "No, no," explained the landman. "*We* pay you."

By May of 1960, Humble had virtually completed its leasing program, and the go-ahead was given to drilling a wildcat on a large unitized tract in Lake County—Thomas Creek Unit, Block No. 3. The well site was about 22 miles north and slightly west of Lakeview, which calls itself the tallest town (elevation 4840 feet) in Oregon. Humble's drilling site was even taller— 5222 feet.

The jackknife mast was raised on a Saturday, July 23, in the clearing known locally as Grasshopper Flat, and drilling operations began the following Monday. One veteran of the derrick floor described the well at Grasshopper Flat as "the wildest wildcat I ever worked on." In terms of nearness to production, it undoubtedly was. The closest oil-producing areas were 560 miles to the northwest, 250 miles to the south, and 500 miles to the southeast. Even in the big-distance country along the Oregon Trail, this is a long way from pay dirt.

Not unexpectedly, there was a great deal of local interest in the well—so much that Humble constructed a parking lot and observation point for the use of visitors. On the second Sunday, from dawn to dark, some 150 automobiles negotiated the winding roads of the Fremont National Forest to enable their owners and passengers to get a close look at a drilling rig in action.

The rest is an old story in the petroleum industry: another dry hole. The drilling went fairly smoothly, and except that they were multiplied by distance, the supply problems were the same as for any other well. But there were no traces of petroleum, and finally, at 12,093 feet, the well was plugged and abandoned.

This does not mean, of course, the end of the long search for oil in Oregon. Because the odds are heavy against every wildcat well, the trail to success is almost always blazed with dry holes. In Western Canada, oilmen drilled 133 dry holes before, on the 134th effort, they made the great discovery at Leduc.

If there is oil in Oregon, America's petroleum industry will eventually find it.

(Editor's note: Early in December, Humble announced the start of its second Oregon wildcat. The new test is being drilled about four miles south of Lakeview.)

Interested onlookers gather at edge of parking lot to watch rig crew at work. For many, it was their first close view of a wildcat well.

HUMBLE PEOPLE S

Economics of Petroleum Conservation

"Many facts demonstrate the advantages of the conservation regulations that have been evolved by the states. For example, the reserves developed per oil well drilled since 1925 have been more than five times as much as the average up to that time.

"In addition, the proportion of reserves recovered by primary methods from fields developed now is probably at least twice as much as that realized from comparable fields in the old days of wide open production. As a result of these favorable developments and technological progress, the price of crude oil in dollars of constant purchasing power has remained relatively stable in the long run, in spite of deeper drilling and smaller reserves per acre.

"Furthermore, the real price of petroleum products and natural gas is much less now than in 1920, before the days of effective conservation . . . These fuels have become the dominant form of energy in our economy, in place of coal, because they have been made available in increasing quantities at attractive prices. Finally, the present system has made it possible for thousands of small operators to engage in exploration and production . . . "

RICHARD J. GONZALEZ, *Director, before Louisiana-Arkansas Division, Mid-Continent Oil & Gas Association, New Orleans, September 9, 1960*

The Problem of Gasoline Taxation

"In our country--truly a nation on wheels—the accumulated weight of federal and state gasoline taxation is already beyond the danger mark . . .

"We see gasoline—the energy source that keeps America on the move—being taxed at rates more conducive to a nation of motor scooters than to an economy linked to versatile, low-cost automotive transportation . . .

"Gasoline taxes across the nation—state and federal—now average nearly 10 cents a gallon. This is within a cent or two of the price of regular gasoline at the refinery gate. At the service station pump, these taxes add nearly 50 per cent to the retail price consumers pay for regular gasoline. They amount, in short, to a sales tax almost five times as high as the federal tax imposed on such luxuries as diamonds and mink coats . . .

"The problem of gasoline taxation can and must be alleviated. The first step . . . is to make the American public fully aware of the fact that the tax burden on gasoline has not only reached, but passed a breaking point. There are strong indications that the public is ready to listen . . . "

D. W. RAMSEY, JR., *Vice President and Director, before New Mexico Petroleum Industries Committee, Albuquerque, September 12, 1960*

Progress Through Instrumentation

"We in the petroleum industry are . . . tough competitors; and we are engaged in a constant struggle both among ourselves and with other industries for what we consider to be our fair share of the business. In this struggle, our attention is continually focused on anything we can do to improve our costs, our services, and the quality of our products.

"This has led us to become a highly mechanized industry; and among all industries, the petroleum industry has made the greatest investment in tools for those who work for it. The

E SAY | *Excerpts from recent talks by Company spokesmen*

capital investment in our industry amounts to $64,000 per person compared to around $15,000 for industry in general. As a result, we have also achieved the highest degree of productivity on the part of our people . . .

"Automatic controls and computer systems do not in any way represent a simple means of throwing people out of work; but instead represent the creation of a new way of life in which each of us can be more productive, a way of life in which we can at last free ourselves from the routine of the production line and spend our working hours in a creative and challenging environment . . . "

E. Duer Reeves, *Vice President and Director, before Instrument Society of America, New York City, September 26, 1960*

The Challenge of Changing Conditions

"The energy needs of our expanding economy will call for the domestic petroleum industry to spend very large sums of money at high risks. As in the past, reasonable tax provisions will be needed to attract enough capital into the search for oil. Only with such provisions can the nation expect the domestic industry to keep pace with demand for the future at reasonable prices . . .

"Dynamic changes confront the domestic petroleum industry. In demand, supply, and costs, we find new developments calling for different courses of action than those to which we have become accustomed . . .

"(But) difficult times are not an unmixed evil. They also provide the stimulus and opportunity for us to find new and better ways to perform our function for the economy. Fortunately, our industry has had plenty of experience with difficulties in the past, and has shown remarkable ability to solve its problems well . . . We can and will meet the challenge of changing conditions so that the domestic petroleum industry will continue to be a major factor in the progress and security of the United States."

Morgan J. Davis, *President, before Rocky Mountain Oil and Gas Association, Denver, October 21, 1960*

What's Ahead For The Industry

"Exploration risks make petroleum production a unique business. Only three per cent of the thousands of exploratory wells drilled annually produce significant commercial deposits, and when we do find a good well, we immediately begin depleting a wasting asset that can be replaced only by new exploration. Thus, tax differentials are necessary to attract some $5 billion that oil producers must risk annually to develop the new supplies our economy needs.

"Those who assert so loudly that the oil industry has a great tax advantage are welcome to invest in this business and obtain this so-called tax advantage. Why don't they? Because even with percentage depletion, it is too risky a proposition . . .

"If Congress ever eliminated percentage depletion, one of two things must happen. Either the oil industry—which could not absorb the additional taxes—would have to increase the price of petroleum products, or it would have to curtail its more risky exploration ventures. If this ever happened, the United States' dependence on foreign oil would become a reality . . ."

Herman P. Pressler, *Vice President and Manager of Public Relations, before Regional Workshop of A.P.I., Salt Lake City, October 24, 1960*

AWARDS

TWO Humble executives and one former Humble employee, now a retired Jersey executive, received high recognition from petroleum associations at annual meetings during the past few months.

Eugene Holman, retired chairman of the board of Standard Oil Company (N. J.), and former chief geologist of Humble, was awarded the American Petroleum Institute's Gold Medal for Distinguished Service at the 40th annual A.P.I. meeting in Chicago, November 14-16.

Morgan J. Davis, president of Humble Oil & Refining Company, was awarded the Texas Mid-Continent Oil & Gas Association's Distinguished Service Award at the association's 41st annual meeting, which was held in San Antonio on September 19-21.

Ralph J. Schilthuis, vice president in charge of production for Humble Oil & Refining Company, received the 1960 John Franklin Carll Award from the American Society of Petroleum Engineers at the Society's annual meeting in Denver, October 2-5.

Eugene Holman, right, recipient of American Petroleum Institute's Gold Medal for Distinguished Achievement, is pictured here with scroll that accompanied the medal. Also pictured are M. J. Rathbone, president of Jersey, who made the presentation, and Morgan J. Davis, president of Humble. In accepting the award, Mr. Holman spoke of the great contributions the petroleum industry has made to the domestic economy and expressed pride that he has had a part in "an exciting era in the history of our industry." He added, "I reflect with no little envy on the opportunities ahead for younger men in the petroleum industry as the world moves on, by means of new knowledge, new technology, and wider use of energy from petroleum."

Morgan J. Davis, left receives Texas Mid-Continent Oil & Gas Association's Distinguished Service Award from Maston Nixon, board chairman, Southern Minerals Corporation. "All Texans are proud of their native son," Mr. Nixon said in making the presentation, "and in the fact that the greater Humble, with its expanded nation-wide operations, will have its nerve center in our state."

Ralph J. Schilthuis, right, receives the 1960 John Franklin Carll Award from Wayne Glenn, 1960 president of the Society of Petroleum Engineers. The award was presented to Mr. Schilthuis for "his important contribution to the technology of petroleum engineering and for his example in applying engineering principles to the problems of industrial management."

RED BRAHMA
. . . carving in mesquite
by H. O. Wyneken, Exploration Department, Corpus Christi

Artists who create at their leisure show 98 works at . . .

EMPLOYEES' ANNUAL ART EXHIBIT

THE greatest thrill for any artist—no matter how convincingly he may insist that he creates for himself alone—is having his work seen and appreciated by the public.

Humble Division employees who wield the tools of the artist in their off-duty hours tasted this thrill again recently. The occasion was the Sixth Annual Invitation Exhibit, sponsored by the Houston Humble Club Art League, and held at Foley's Town Hall in downtown Houston.

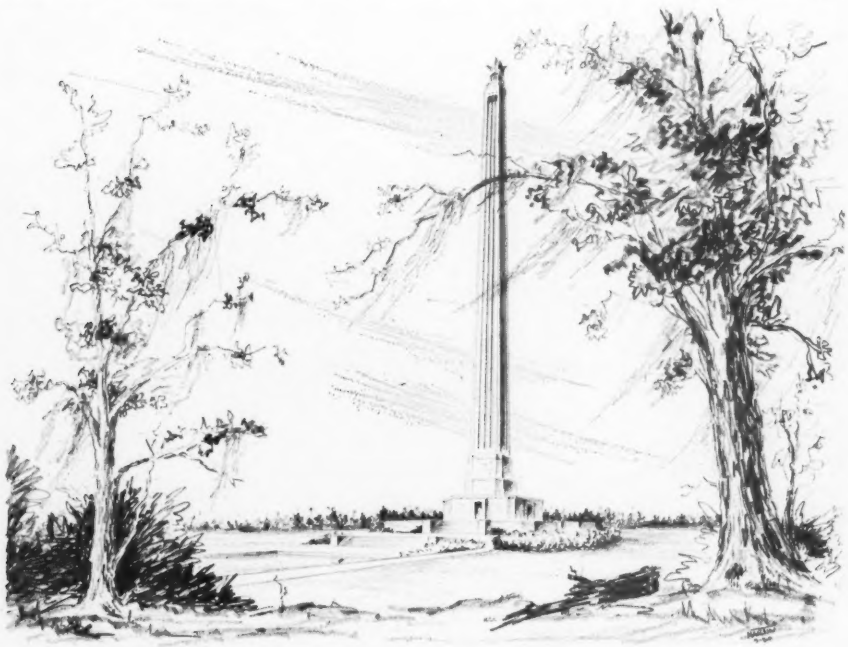
A total of 98 works—oil paintings, watercolors, pencil sketches, sculpture, mosaics, carvings, and other crafts—went on public display for a three-week period in October. Entries were submitted by a record number of spare-time artists—42 employees, 18 wives of employees, and three annuitants representing 15 towns and cities in four states.

"This year's show wasn't our biggest in number of entries," says Al Kaeppel, president of the Art League and manager of the exhibit, "but from the standpoint of quality, it was the best in our six-year history."

Judges for the show were Nadine Bracker, Houston portrait artist; Jack Flanagan, conservator of the Houston Museum of Fine Arts; and Josef Silhavy, an art instructor at the University of Houston. They announced three awards in each of three categories, but not on a first, second, and third-place basis. In addition, winners of three special awards received autographed copies of the new book, "Buck Schiwetz' Texas."

Looking to 1961, president Kaeppel is exploring the possibility of a Company-wide art showing. "If the project materializes," he says, "it could mean that a Texas geologist competes artistically with a Montana refinery worker, a New York sales representative, or a California stenographer." The 1961 show is tentatively scheduled October 23 through November 4.

Awards for the 1960 show are listed below. For a cross-section of the exhibition, THE HUMBLE WAY selected the eight works reproduced on this page and the next two pages. Not all are prize-winners, but they serve to illustrate the versatility of Humble's leisure-time artists and the general excellence that characterizes their annual art exhibit.



THE TALL TEXAN. . . *a pencil sketch by John R. Martin, who is a senior draftsman at Baytown Refinery*

ART SHOW WINNERS*

Oil Paintings—Al Kaeppel, Exploration Department, Houston; Miss Mary Lampson, Marketing Department, Houston; and Miss Elizabeth A. Lloyd, Production Department, New Orleans.

Water Colors-Pastels-Drawings—Charles Becker, Humble Pipe Line Company, Houston; Mrs. Mary Glenn Cunningham, Baytown; and W. C. Ward, Marketing Department, Lufkin.

Sculpture-Mosaics-Crafts—Dan Hale, Exploration Department, Corpus Christi; Mrs. David Schweitzer, Roswell, N.M.; and H. O. Wyneken, Exploration Department, Corpus Christi.

Special Awards of Excellence—Miss Mary Lampson, Mrs. Mary Glenn Cunningham, and W. C. Ward.

*Awards not on first, second, third-place basis

TWEETY

. . . an oil painting by Mrs. Billie L. Files of Corpus Christi, an Exploration Department draftsman

MORNING FLIGHT

. . . a prize-winning watercolor by Charles Becker of Houston, an engineering draftsman in Humble Pipe Line Company

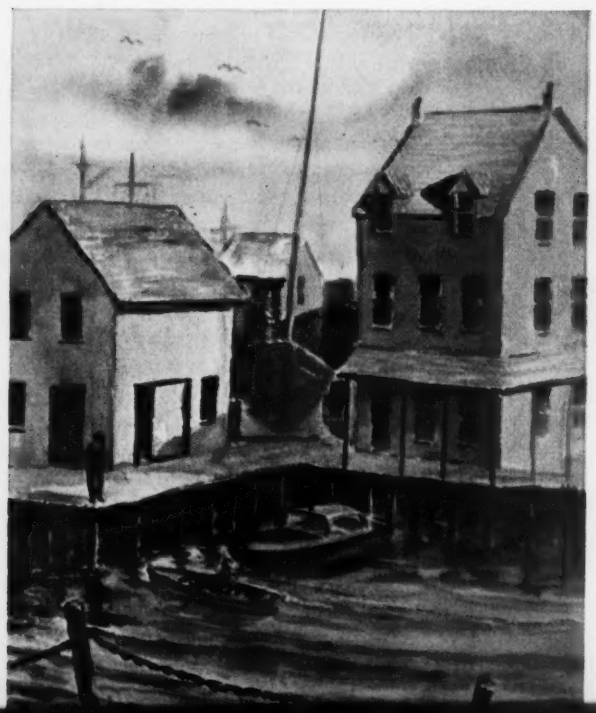
FISHERMAN'S WHARF *. . . a prize-winning oil painting by Al Kaeppel of Houston, assistant chief draftsman in Scouting Section of Exploration Department*

DAVID

. . . prize-winning portrait is work of Mrs. Mary Glenn Cunningham. Her husband, Claud, is a senior supervisory engineer at Baytown Refinery

WATERFRONT

. . . a watercolor by Robert M. R. Peale of New Orleans, supervising draftsman, Production Department



INDIAN CORN

. . . an oil painting by Mrs. Virginia Blackmon of Baytown. She is the wife of Harlan H. Blackmon, instrument technician at Baytown Refinery

Night scene at King Ranch Gas Plant shows some of the processing units in which various useful raw products are separated out of the liquids extracted from gas. Now serving 13 producing fields, the plant has capacity to process 950 million cubic feet of gas daily.

KING RANCH GAS PLANT

Humble's newest and largest gas cycling and processing installation is now in operation in Southwest Texas

EARLY in September, without fanfare or public ceremony, Humble began full-scale operation of its new King Ranch Gas Plant—the largest gas processing and cycling plant in the United States.

Designed to process as much as 950 million cubic feet of gas a day, the mammoth installation occupies a 151-acre site some 14 miles southwest of Kingsville, in the heart of the great Southwest Texas ranch country. The plant required more than a year to build, and represents more than five years of meticulous planning involving every major department of the Humble Division.

The new gas plant is the focal point of a vast gathering system in which gas is collected through 170 miles of gathering lines from 13 producing fields scattered over a wide area of Southwest Texas. Also tied into the plant is Humble's new 30-inch industrial gas transmission line which parallels the Gulf Coast for a distance of 238 miles from the King Ranch to the Houston area. This pipe line, completed last year, connects near Houston into the older Tomball Gas System, which extends eastward into the Beaumont-Port Arthur industrial area.

Total cost of the new facilities—including the King Ranch Plant, field gathering system, and 30-inch gas transmission line—amounts to approximately $68 million. That is a sizable investment of capital, and in planning the project, the Humble Company took into consideration three significant factors:

• *Increasing demand for industrial fuel:* Rapid development of industry along the Texas Gulf Coast has steadily raised the demand for natural gas as a fuel. Looking into the future, Humble could foresee that additional supplies of gas would be needed to meet the requirements of local industrial customers, especially in the Houston and Beaumont-Port Arthur areas.

• *Growth of the petrochemicals industry:* Projected expansion of petrochemical manufacture along the Gulf Coast indicated an increasing market demand for certain liquid products which can be recovered from gas, and which are the basic raw materials for many petrochemical products.

• *Economic utilization of gas reserves:* In Southwest Texas, Humble has large reserves of gas which contains the liquefiable products needed by petrochemical manufacturers and refiners. Some of this gas is currently available for use as industrial fuel, but some of it must be retained to maintain pressure in oil reservoirs. By processing the casinghead gas and gas well gas prior to selling it as fuel, the Company is able to recover the liquid products which otherwise would be burned with the fuel gas. Processing also makes it possible to recover liquid products for current sale from gas for which no ready market currently exists, or which cannot be sold for many years to come because it must be retained in the reservoirs or temporarily produced for processing and then injected back into the reservoirs to maintain pressure and to attain maximum oil or liquid recoveries.

The King Ranch Gas Plant is the key installation in this complex and far-reaching new system. At the heart of the plant is a battery of 13-gas-powered compressors with horsepower ratings ranging from 1350 to 2000. These are housed in a building 40 feet wide and 475 feet long. Towering above the site are nine absorption units and a number of distillation and fractionation units, including a deisobutanizer which stands 144 feet tall. To cool the large volume of water circulating through the processing units, there is a cooling tower as tall as a three-story building and 80 feet longer than a football field. Electrical power for the plant is supplied by four giant turbo-generators, capable of producing enough electricity to meet the normal requirements of a small city. Other facilities at the site include an attractive office building and a well-equipped testing laboratory.

To carry on the plant's operations, Humble maintains a complement of 125 employees. Eleven of these are needed for each eight-hour operating shift; the remainder are engineers, maintenance men, laboratory technicians, and others. Most of these employees have their homes in Kingsville and other communities within easy driving distance of the plant site.

While the operations within the King Ranch Gas Plant are complex and technical in detail, they can be described broadly in non-technical terms:

Wet gas (gas containing liquefiable hydrocarbons) is brought into the plant from the various producing fields, and is piped through a series of absorption towers. In these units, the gas bubbles up through trays of absorbent oils which soak up the liquid hydrocarbons, leaving "dry" gas as the residue. Some of this "dry" gas is then injected back into gas and oil reservoirs for pressure maintenance, some is used as plant fuel, and the remainder is sent through the 30-inch pipe line to industrial customers along the Texas Gulf Coast.

Meanwhile, the liquids extracted in the absorption process are piped to other processing units in the plant, where they are separated by fractionation into ethane, propane, iso-butane, normal butane, and debutanized gasoline. All of these products are sold to petrochemical plants and refineries in the Southwest Texas area.

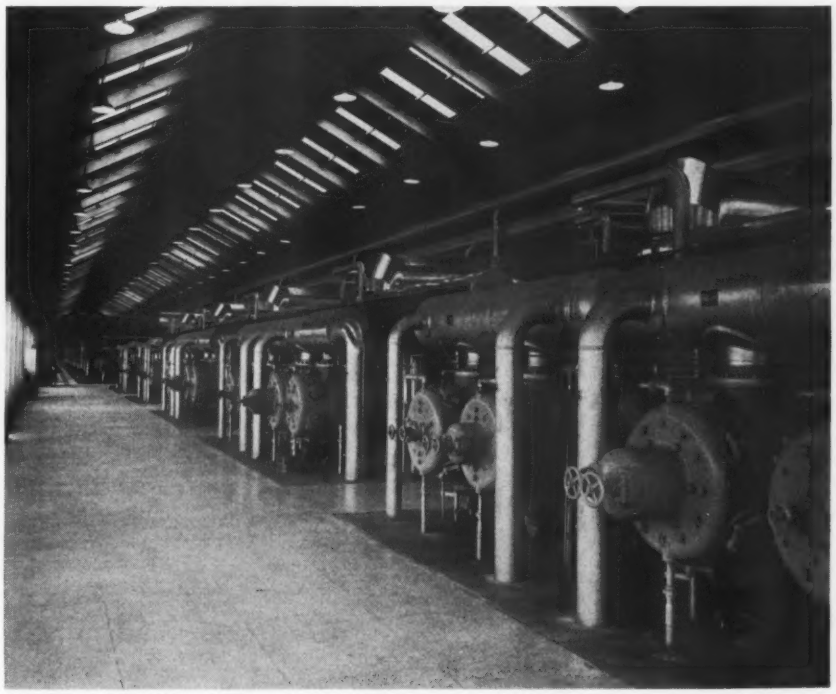
Although the King Ranch Gas Plant was designed basically with a processing capacity of 950 million cubic feet of gas a day, Humble does not expect to achieve that maximum rate in the immediate future. Currently, the plant is processing about 545 million cubic feet a day. Next year, the rate will be increased to around 680 million, and in the not too distant future to about 800 million cubic feet a day.

Under normal operations at the processing rate of 680 million cubic feet of gas a day, the plant will yield approximately 27,800 barrels of products daily. In this total will be some 5,700 barrels of ethane concentrate, 6,100 barrels of propane, 2,100 barrels of iso-butane, 2,400 barrels of normal butane, and 11,500 barrels of debutanized gasoline. The dry gas made available at this rate of processing will be used as follows:

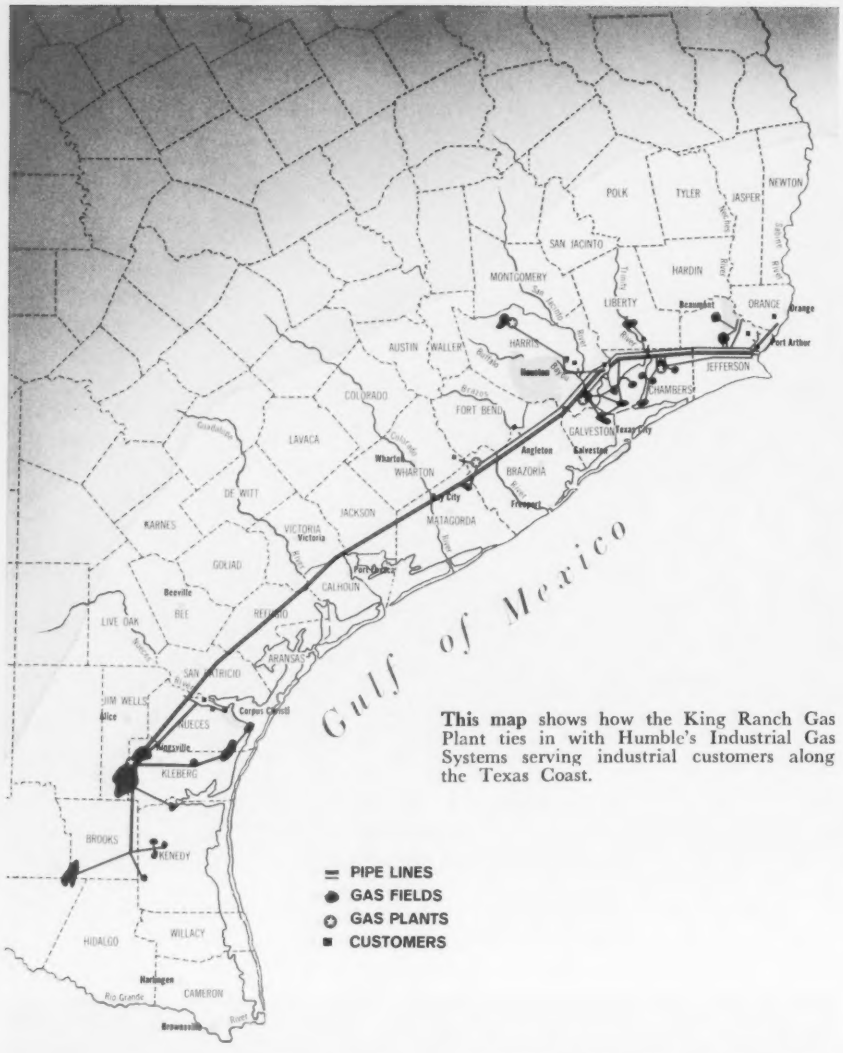
• Approximately 325 million cubic feet will be injected into reservoirs being cycled and 55 million cubic feet will be injected into oil reservoirs for pressure maintenance.

• Some 60 million cubic feet will be consumed as fuel for the processing plant itself, and as product shrinkage.

• The remainder, varying in quantity according to market demands, will be transmitted by pipe line to industrial customers along the Gulf Coast.



Thirteen compressors, some of which are shown in this picture, are needed to handle the large volumes of gas and complex compression requirements of the vast King Ranch system.



This map shows how the King Ranch Gas Plant ties in with Humble's Industrial Gas Systems serving industrial customers along the Texas Coast.

The gas cycling operation is an interesting and highly important aspect of the King Ranch Gas Plant's function. Humble's engineers point out that cycling results in three significant economic gains:

First, the extraction of liquefiable hydrocarbons from the gas, while not lessening the desirability of the resulting "dry" gas as an industrial fuel, does increase total current income because the liquid products recovered are more valuable as such than as constituents of industrial fuel gas.

Second, gas-cap gas, which could not normally be produced for many years because its pressure is essential to the production of the oil associated with it in the reservoirs, can be produced currently by cycling for the purpose of recovering liquid products from the gas and making them available to existing markets. The liquids recovered generate current income, even though the processed gas is returned to the reservoir to maintain pressure and to improve oil recoveries.

Third, cycling plays an important role in conservation because it makes possible a greater total recovery of liquid hydrocarbons from the underground reservoirs than would be possible without this process.

This last point deserves a bit of explanation, even at the risk of over-simplification.

In a typical gas reservoir, the gaseous hydrocarbons are confined under considerable pressure, which normally relates to depth and is higher the deeper the deposit is found. As gas is produced from a reservoir through a producing well, the pressure in the reservoir diminishes. When the pressure drops below a certain point, in some cases, a phenomenon that engineers call retrograde condensation occurs. What happens is that some of the hydrocarbons condense from a gaseous to a liquid state—exactly the opposite to what one would normally expect. As liquids, these hydrocarbons adhere as a film on the surfaces of the reservoir rock or the connate water where there is less possibility for their recovery.

Pressure maintenance and cycling prevent this condensation of liquids within the reservoir by preventing the pressure drop that causes it. As wet gas is withdrawn through producing wells, compressed dry gas is injected into the reservoir behind the wet gas so that pressure is maintained at almost the original level. Thus, a complete cycle is established. The dry gas pushes out the wet gas which is then processed into dry gas and injected to push out more wet gas.

Another interesting type of gas injection program will also be carried on through the King Ranch Gas Plant. This is an enriched gas process that will increase the recovery of oil from oil-producing zones.

The enriched gas technique is based on results of experiments conducted over a period of years by Humble's production research group. In the laboratory, these researchers found that where dry gas injection enabled them to recover 23 per cent of the oil contained in a test reservoir, the injection of gas enriched with propane or ethane resulted in a recovery of more than 90 per cent. The enriched gas seems to mix completely with the oil and literally "washes it out of the reservoir sand like a cleaning solvent washes a grease spot out of clothes."

Enriched gas injection projects have already proved successful in the Seeligson Field on the King Ranch, and the Company plans to start similar projects on three additional reservoirs in the near future.

Humble's association with the historic King Ranch dates back to 1919, when leases were first negotiated on a portion of the ranch property. Several years of search for oil proved fruitless, except for one small producing well drilled in 1923, and Humble finally began to surrender its leases. In 1933, however, the Company had a change of heart and, in one momentous stroke, leased the entire King Ranch—about one million acres. Painstaking exploration efforts continued and, in 1939, after 20 years of dry holes, the Company brought in its first producing well

Aerial view shows size of King Ranch Gas Plant. Processing units are at left center; towers to their right are absorption units; building at far right is compressor building; dark structure in foreground is water cooling tower; electricity generating plant is at upper left.

of any size on King Ranch property.

To date, Humble has discovered some 21 oil and gas fields on the King Ranch leases. Six of these fields are currently producing gas to the new processing and cycling plant, as are seven other fields in the area surrounding the King Ranch. Additional fields will be tied into the system in the future. Even now, however, the gathering system includes such faraway points as the Flour Bluff Field, 49 miles northeast of the plant, and the Kelsey Field, which lies 51 miles to the southwest.

Thus the King Ranch Plant takes its place as the newest, largest, and probably the most important among the 15 gas processing plants operated by Humble and the 11 other plants in which Humble owns a part interest but does not operate. By making available large supplies of liquid products and natural gas, while at the same time carrying out sound conservation practices, the new plant has become a significant factor in the continued industrial development of the Southwest.

Gas dispatcher keeps close tab on gas coming into and going out of King Ranch Gas Plant by means of telemetering system. Telephone and radio systems provide fast communication.

ENERGY IS OUR BUSINESS

As America's leading energy company, Humble plays important role in the nation's progress

PERHAPS you've had this dismal experience. Your car coughs and stops. The gasoline gauge indicates empty. Down the street is a service station. With the help of two or three fellow passengers, you push the car for two long blocks. Remember the strain, the thrust of your feet against the pavement—the human energy required to keep the car moving? But an ounce of gasoline—just enough to cover the bottom of a teacup—could have supplied sufficient energy to zip the car those two blocks with no strain on driver or passengers.

A few years ago, the weekly chore of mowing the lawn required most of Saturday afternoon and considerable muscle power on the part of the man of the house, with time out for drinks of cool lemonade. Now, a chugging motor, powered by a quart or two of gasoline, enables the man of the house to watch the televised ball game and still have time to follow the mower around the yard before dark. The stored up energy in the gasoline substitutes for the human energy which otherwise would be necessary to get the job done.

Gasoline and its companions, fuel oil and natural gas, are storehouses of energy. If man had not developed ways to locate and produce the energy hidden by nature beneath the surface of the earth, our civilization would still be about the same as in Biblical times, when all physical work had to be done by the muscles of men with some help from horses and oxen.

Energy is the key to civilization; and energy is the business of Humble Oil & Refining Company. In its manifold operations, the Company searches out the energy-containing oil and gas hidden deep within the earth, brings these materials to the surface and processes them so that they become usable, transports them over hundreds of miles, and then sells the final product in the form of gasoline, natural gas, and various other fuels. Through these products from Humble and other companies, America gets the energy to keep its millions of cars and trucks and Diesel-powered ships and trains on the move, the fuel for much of its vast industrial plants and factories, and the power to operate its myriad of construction machines. The energy that undergirds the vitality of American life is Humble's major product.

To help us understand the significance of Humble's role as a supplier of energy, let's first examine an interesting fact: The consumption of energy within any country bears a striking relationship to the standard of living within that country.

In primitive lands of past and present, where energy is restricted to human power, man toils unceasingly to produce food, clothing, and shelter sufficient only for his own subsistence. Living thus becomes an endless cycle of drudgery at the lowest level. Escape can come only if extra energy can be generated to increase production beyond subsistence, thus creating a surplus which can be used as capital. This capital can then be invested in machines and tools; these machines and tools multiply the energy controlled by each man, and production

is accelerated. Thus a new cycle begins, a spiral upward whereby increased production may be used in part for higher standards of living and in part as new capital to invest in more machines.

In many countries, the breakthrough has not yet come to provide general escape from the subsistence cycle. In Asia, unceasing toil by most of the population is still necessary to produce the food and shelter essential to keep the people alive in order that they may toil to produce the food and shelter essential to keep themselves alive. Underdeveloped areas throughout the world are searching strenuously for ways to turn the spiral upward. Surplus produce must provide the above-subsistence margin necessary to kick off the upward movement; but population expansion has offset the meager gains made by simple mechanization and slightly improved agricultural production. Two pathways are being explored: One is the path of complete regimentation of the people, concentration of all human energies into defined programs that permit no waste of effort, with the hope that such concentration will eke out the surplus essential for purchase of machines and tools and energy supplies; the other path depends on the use of capital from outside sources, borrowed or contributed, as a "pump primer," to permit the building of dams and factories and the purchase of machines and energy sources to raise production and living standards. But up to now, progress in many areas is barely perceptible.

In the western world, escape from the cycle of subsistence evolved slowly and painfully through the eighteenth and nineteenth centuries as man experimented with machines for industrialization and probed for new sources of energy. Coal became the giant in the energy field in the nineteenth century, providing the motive powers for plants to manufacture more products and for railroads and steamship lines to shuttle raw materials and finished products across land and sea.

But the expanding industrial production, by the late nineteenth century, had bumped against limits set by the kind of energy available. Coal tied land transportation to expensively constructed railway lines, factories had to be located with strategic reference to fuel supplies, and even the machines of industry themselves were limited by their dependence on stationary power. The limited crude oil supplies were used mainly for illumination—oil for the lamps of the world—and lubrication. Thus the stage was set for Spindletop; and the dramatic emergence of petroleum as an abundant new source of energy.

In twentieth century America the upward spiral of energy use, triggered by availability of abundant oil and natural gas, has culminated in the highest standard of living known to man. Admiral H. G. Rickover describes this harnessing of energy to serve our society in these words:*

> Man's muscle power is rated at 35 watts continuously, or one twentieth horsepower. Machines, therefore, furnish every American industrial worker with energy equivalent to that of 244 men, while at least 2,000 men push his automobile along the road, and his family is supplied with 33 faithful household helpers. Each locomotive engineer controls energy equivalent to that of 100,000 men; each jet pilot of 700,000 men. Truly, the humblest

* H. G. Rickover, Rear Admiral, U. S. Navy, "Energy Resources and Our Future," presented May 14, 1957, before the Annual Scientific Assembly of the Minnesota Medical Association.

"The humblest American enjoys the services of more slaves than were once owned by the richest nobles..."

American enjoys the services of more slaves than were once owned by the richest nobles and lives better than most ancient kings.

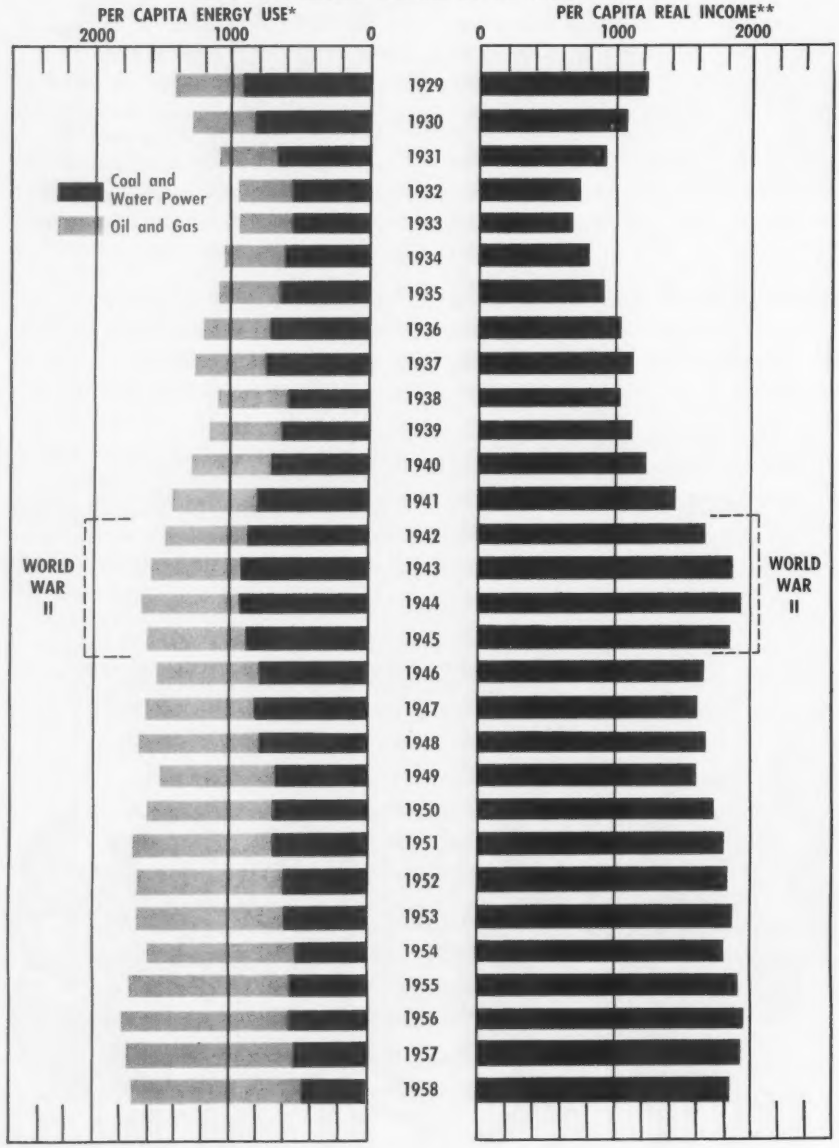
If you trace the increasing per capita consumption of energy in the United States, you will find a remarkable parallel between this growth and the rise of income per person. (See Chart 1.) In like manner, if you examine countries over the world today, you will find that living standards closely parallel energy consumption. (See Chart 2.)

Vigorous competition characterizes the energy field in the United States.

Coal and petroleum (oil and gas) have been the chief rivals in the twentieth century. The most striking development of the last thirty years has been the rise of petroleum. In 1926, coal furnished 70 per cent of the total energy consumption in the U. S., while oil and gas furnished 27 per cent. By 1958 the positions were reversed; oil and gas supplied 72 per cent, with coal at 25 per cent. Although total energy consumption doubled during these years, coal tonnage remained about the same. In industrial uses, however, coal has continued to be a strong competitor with oil and gas, particularly in the generation of electric power, which represents a rapidly expanding market.

CHART 1

REAL NATIONAL INCOME AND ENERGY CONSUMPTION PER CAPITA HAVE BEEN CLOSELY RELATED IN THE UNITED STATES



* Consumption of oil, gas, coal and water power expressed in gallons of crude oil.
** National income in 1954 dollars.
Sources: Bureau of Mines and Department of Commerce.

Competition is also keen between oil and gas, and among the many concerns that supply these forms of energy. It stimulates a constant search for new oil and gas reserves, continuous research to improve products, and strenuous efforts to attract customers by better prices and service. Competition has served to keep energy prices down despite inflation and all the other factors operating to increase costs. Note, for example, that regular grade gasoline sold at service stations in 1922 for 25 cents a gallon, exclusive of tax. Last year, the average price of regular gasoline, exclusive of tax, was 21.47 cents a gallon. You might remember, too, that 25 cents in 1922 had the purchasing value of about 45 cents today. And let's not overlook the fact that during these years the average octane rating of regular gasoline increased from 60 to more than 90—thus quality went up while price went down.

Even within a single large company such as Humble, competition exists between products. Humble's fuel oil competes with Humble's natural gas for residential and industrial customers. In time, as the jet age progresses, kerosine may take over much of the market for aviation gasoline. Such internal competition means that the customer has a choice of energy fuels. He is free to select the one which, for his purpose, is most convenient, economical, and effective. Also, the internal competition demonstrates the unusual versatility of petroleum as a field of energy. As market requirements change, output can be switched to a considerable degree from kerosine to gasoline, and then to jet fuel, to cite a dramatic example.

Thus competition provides a moving force at three levels in the world of commercial energy—between kinds of energy, between companies within each field of energy, and between energy products within the same company.

This sharpening competitive struggle provided one of the motivating forces behind the recent mergers in which five domestic affiliates of Stand-

ard Oil Company (N. J.) united to form the new Humble Oil & Refining Company—America's leading energy company.

Humble's position can best be understood against the background of total petroleum consumption in the United States. Though Americans represent only about one-seventeenth of the world's population, they consume almost half of the total petroleum used in the world. Farm vehicles alone in this country consume more motor fuel than motor vehicles of all kinds on the three continents of South America, Asia, and Africa. Each hour, twenty-four hours a day, 365 days a year, Americans spend an average of nearly $2,000,000 in service stations.

The upward spiral of energy consumption seems destined to continue. The annual rate of increase is about two and one-half per cent. At this rate, energy consumption in the United States will roughly double in the next twenty-five years.

Let's examine Humble's role in supplying energy in the United States.

In total reserves of oil and gas in the United States—that is, known supplies already developed and waiting to be produced—Humble is ahead of its nearest competitor by a substantial margin. In addition, the Company has a stronger position as a future supplier of energy than its principal competitors because known reserves are being produced at a much slower rate.

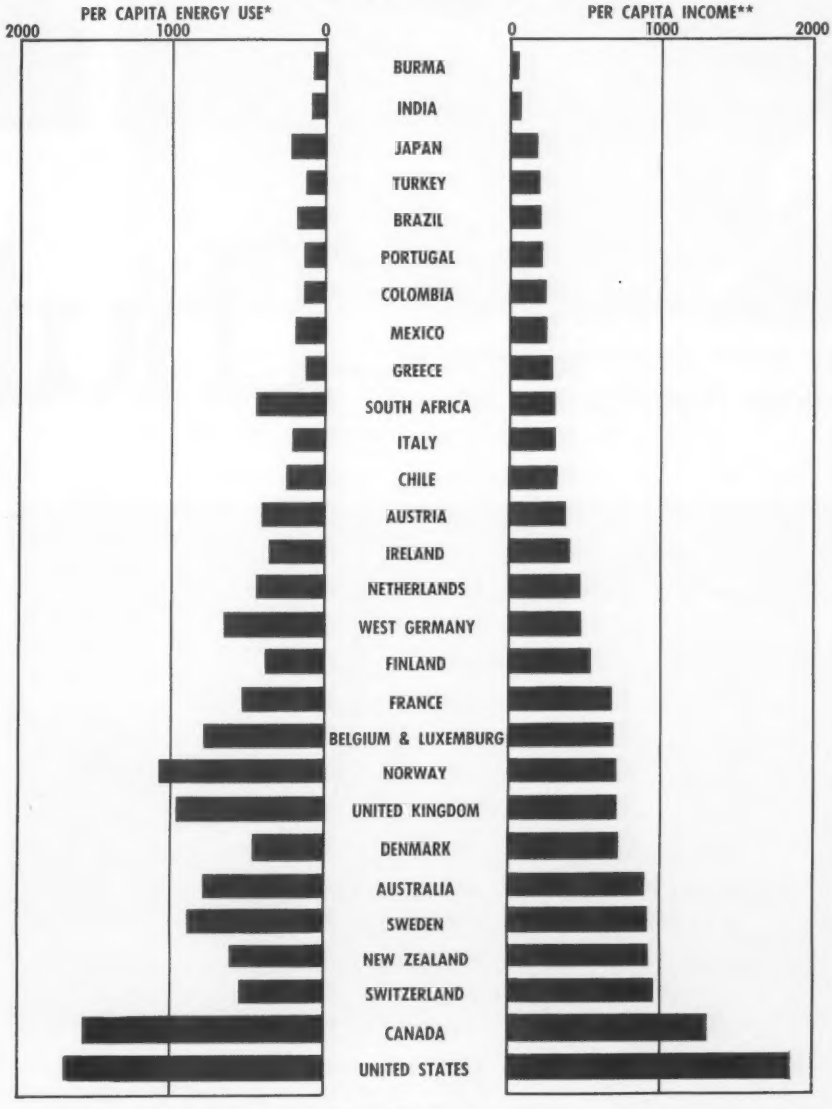
Humble also produces more energy in the form of oil and gas in the United States than any other company. From about 18,000 active wells, and a score of gas processing plants, Humble supplies about 5 per cent of the petroleum energy produced in this country. Humble gasoline, fuel oil, and natural gas move by pipeline, tanker, and truck into 38 states, serving industrial customers, home owners, and motorists.

With some 30,000 service stations now selling Humble products, the Company is in position to serve motorists from coast to coast. One out of every ten cars on the streets and highways of the United States today is powered by Humble gasoline.

As the nation's largest supplier of energy from oil and gas, how does the Humble Company view the much-discussed prospect of widespread competition from nuclear energy? The Company's scientists and management see no cause for concern. For the foreseeable future, they feel that whatever fuel markets oil and gas lose to nuclear energy will be more than offset by increases in other uses of petroleum products. Petroleum engineers are already using radioactive isotopes to help locate and produce crude oil and gas. Humble's research scientists keep abreast of nuclear experiments, with an eye to future shifts toward new forms of energy and the effective combination of petroleum and nuclear energy. Nor is solar energy entirely neglected in coffee-cup conversations at the Research Centers. Such signs indicate that Humble intends to retain far into the future its right to be called America's leading energy company.

Energy is a significant key to the future world that is being created. It is a central factor in the struggle between East and West over the best pathway for material betterment of peoples of all lands. Humble Oil & Refining Company is in the midst of this thrust toward the future. Energy is our business.

CHART 2
ENERGY CONSUMPTION AND INCOME ARE CLOSELY RELATED THROUGHOUT THE WORLD



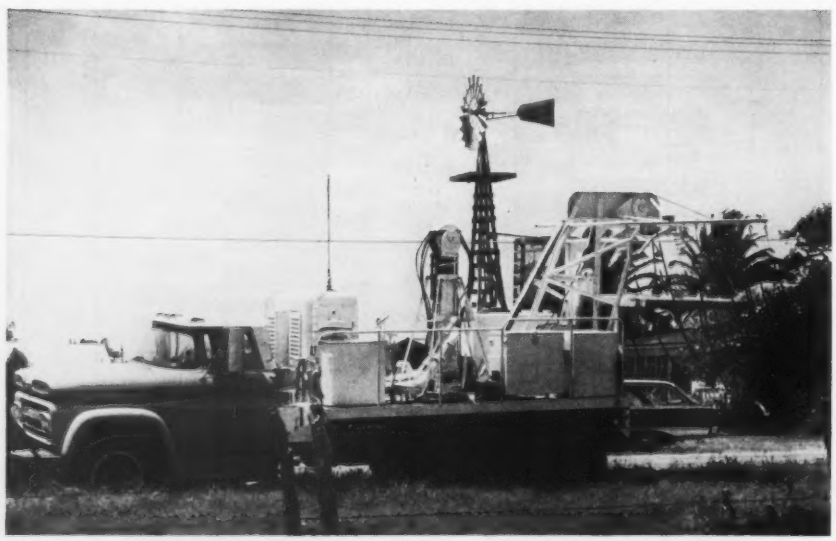
* Consumption of all forms of energy expressed in gallons of crude oil.
** National income measured in U. S. 1952 dollars.
Source: Joint Committee on Atomic Energy (1952 Data).

Thumper in action shows 6,000-pound steel slab, surrounded by safety chains to warn personnel, falling nine feet to strike earth and create shock waves. Weight-dropping aids the oil search as an effective, economical substitute for dynamite in seismic operations.

Seismic party plans a day of thumping across Texas farm land near Lubbock. Thumper team is about the same size as a conventional shooting crew, but can operate at considerable savings. Humble crews have weight-dropped in Oregon, Florida, Alabama, Mississippi, Louisiana, all over Texas.

Geophysicists enlist new tool in search for buried reserves of energy. Nowadays, they are . . .

Thumping



Roadside thumping near house and water well illustrates a big advantage of weight-dropping over shot hole explosions; it can be safely used within city limits and in other restricted areas with little or no damage. Humble seismic crews drop steel slab every 21 feet in 15-second intervals; often log as many as a thousand thumps in a day. The thumper pictured here is at work near Ingleside, Texas, once the site of a Humble refinery.

Years ago, oilmen learned that an effective way to get a "picture" of the subsurface was to drill shallow holes, explode dynamite in them, and study the shock waves that bounce back from the sediments below.

Now oil scientists have developed a new and strikingly simple way to create these miniature earthquakes. Drop a heavy weight, they found, and you generate elastic energy as efficient, in most cases, as that produced by a sizable charge of explosive; in isolated instances, even more efficient.

The mammoth tool that performs this job is called the "thumper." Its business end is a three-ton slab of battleship armor plate. Moved about by a big truck with a hydraulic hoist, the weight is dropped time and again, while delicate instruments pick up the reflected impulses and record them on magnetic tape. Resulting data are used to map the geologic profile of the area.

Seismic operator, who shares office space with maze of electronic equipment, triggers weight-drop by sending tone signal to thumper truck. Resulting data recorded on magnetic tape tells geophysicists of underground structures that may trap petroleum.

g for Oil

Reeling in cable, crew members prepare to move geophone network to new position. In normal operation, they set out star patterns of 96 geophones at opposite ends of 4,000-foot line surveyed by engineers; thumper works from one end to the other. Pick-up system is so sensitive that auto engines are cut, men stand stock still during thumping sequence.

Thumping the earth in search of structures that might contain oil and gas is a lot more scientific and complex than thumping a watermelon to test its ripeness. The oil industry has gained a healthy respect for weight-dropping as a valuable technique to implement other seismic operations. Reason: The thumper provides reliable geologic information at a substantial savings.

The idea of seismic thumping is at least 75 years old. In Japan, men of science dropped weights to produce synthetic earth tremors as early as 1885. Only in recent years, however, has the technique come to serve the petroleum industry.

Humble research, while not responsible for inventing the thumper, has played a key role in its development over a period of several years. Today, two of the 20 seismic crews operating for the Humble Division employ thumping methods in the quest for oil.

Where does the thumper fit into the oil exploration picture? Most oilmen doubt that it will ever replace the shot-hole method on a wholesale basis. They do believe, however, that it faces a bright future with its advantages of speed, accuracy, versatility, and the added ability to operate safely in townships and other places where dynamite blasts are forbidden.

Most significant, the thumper promises to reduce the ever-rising cost of hunting for oil. To operate a conventional seismic crew, using shot holes and explosives, costs $20-40,000 a month. The thumper, in many cases, can cut this cost from one-third to a half.

The mighty thumper is but another in a long list of improved tools and techniques which help the oil industry keep the U. S. supplied with an abundance of low-cost petroleum products.

Making tracks that have puzzled many observers, thumper quietly works way across cultivated field. One rancher was pleased with gentle depressions left by falling weight; said they caught rainfall, aided grass growth for cattle.

Humble Adopts Revised *Uniform Benefit Program*

Company-wide program goes into effect on January 1, includes several changes and improvements in plans

A REVISED Company-wide employee benefit program—one that makes uniform protection available to Humble employees—went into effect January 1, 1961.

Although this program includes the same plans and covers the same areas of need as existing programs, a number of changes have been made for uniformity and improvement. These changes were explained in detail to most of Humble's 42,000 employees in group meetings held throughout the Company since mid-October. An explanatory booklet, with an introductory message from Humble's President Morgan J. Davis, also was distributed to employees.

"Since the formation of the new Humble Company," Mr. Davis said, "one of the things we have been anxious to accomplish is a uniform benefit program for the whole Company. We have been studying our plans for several months and have come up with changes which make the plans uniform and also add some new features which will mean a sounder program and improved benefits for all.

"One of the objectives of these changes is that every Humble employee covered by our benefit program will be treated in the same way, regardless of where he works or what job he has. One of the reasons for our recognized leadership in the benefit plan field is the fact that we have kept our plans up to date by making changes from time to time. We have, however, endeavored to keep these changes to a minimum. In the same way, we believe that the recent changes we have made in the organization of our Company are going to benefit all of us by making us a stronger nation-wide company."

The revisions in the program do not in any way alter Humble's basic objectives or philosophy toward employee benefits. The Company feels that the changes being made will help accomplish, even better than before, these broad purposes:

1. To protect the employee and his dependents against loss of income in the event of the employee's illness, injury, or death.
2. To help the employee build savings for emergencies and future needs, and provide annuities for his retirement years.

In revising the existing plans with an eye toward uniformity, Humble also took other factors into account. For example, careful consideration was given to suggestions from various employee groups for changes in the plans. Tax specialists reviewed the revised program to make sure that it would offer employees maximum tax saving under existing tax laws. Some important improvements were worked out as a result of those studies. Accounting procedures also were given due consideration in the planning, and the revised program was designed so as to make more extensive use of modern electronic data processing systems in handling plan transactions. This will speed up the transactions and improve the servicing of the employees' accounts.

Although these plans are designed to be up-to-date, the Humble program will continue to be studied continuously in the future as it has in the past. As conditions change, the program is subject to change.

It would take considerably more space than we have here to describe the unified benefit program with any degree of detail. The following, however, will serve as a broad outline of the plans as they will apply to all of Humble's employees who are covered by them. More detailed information, describing what employees are covered and what benefits are provided, has been made available to employees through other channels of communication.

Group Life Insurance is a plan in which the employees and annuitants who participate pay a part of the cost; Humble pays the remainder. Participation in the plan is entirely voluntary. The amount of insurance coverage allowed under the plan depends upon the employee's rate of pay and his age. Up to age 55, the coverage is equal to about two years of his normal earnings, declining gradually thereafter to about one year's earnings at age 65. At current rates, the employee pays only 55 cents a month for each $1,000 of insurance coverage. After retirement at age 65, he pays a higher monthly rate of $1.25 per $1,000, and the amount of coverage decreases gradually.

Survivor Insurance is a form of protection provided by Humble without cost to employees covered by the benefit program. After one year of service with the Company, a covered employee having qualified beneficiaries as dependents is automatically under the plan. In the event of his death, his dependent survivors receive an immediate lump payment of $500, followed by a number of regular monthly payments equivalent to one-half of the deceased employee's normal monthly earnings at the time of his death. How long these monthly payments continue depends upon how long the employee worked for the Company. If, for example, he had only one year of service, his survivors would receive six monthly pay-

ments; for five years of service, 24 payments would be made; and for each year of service in excess of five, one additional monthly payment would be made. If an employee dies without dependent survivors, a lump sum payment of $300 will be made.

Disability Benefits, also provided by Humble without cost to employees who are covered by the program, give the employee a measure of protection against loss of earnings by reason of illness or injury. When any employee must be absent from his job because he is sick or incapacitated by an off-the-job injury, the Disability Benefit Plan assures him a continuation of income —the amount and number of payments depending upon his normal rate of pay and his length of service. Minimum coverage, for an employee with less than one year of service, is two weeks at full pay. For an employee with 10 or more years of service, coverage is 26 weeks at full pay plus another 26 weeks at half pay. In cases of disability caused by on-the-job accidents, an employee, regardless of length of service, receives up to 26 weeks of full pay plus 26 weeks of two-thirds pay.

Revisions in benefit program plans were explained to Humble employees throughout the United States. Here, a group of employees in Great Bend, Kansas, district hears discussion.

The Annuity Plan is one in which eligible employees pay part of the cost and the Company pays the remainder. Participation is, of course, on a voluntary basis. Broadly described, the employee contributes less than three per cent of his current earnings throughout his working years, and the Company adds, on the average, about four dollars to each dollar put up by employees. When an employee retires, he receives monthly annuity payments for the rest of his life. The program is designed so that under normal circumstances an employee with 35 years of participation in the Plan could at normal retirement age expect to receive income, including Social Security, of about 50 per cent of his final pay. In no event will an employee's annual retirement income be less than two-thirds of his total contributions. Annuity income is payable for life. Special provisions are made under the plan for employees who must retire early because of total and permanent disability; also for other employees who retire early.

The Thrift Plan is a voluntary savings plan in which an eligible employee makes a regular allocation of up to 10 per cent of his earnings to a Thrift Fund account and the Company regularly contributes a specified corresponding amount up to a maximum of 3 per cent of his earnings. The Company also may, at its discretion, make additional contributions to the employees' accounts in the Thrift Fund.

The employee may leave the cash in his account, or he may instruct the Thrift Fund Trustees to invest all or part of it in stock of Standard Oil Company (New Jersey).

Although the primary purpose of the Thrift Plan is to encourage long-term savings, the plan does permit the employee to withdraw part of the stock or cash in his account at six-month intervals in accordance with a fixed formula. He may also borrow against his Thrift Fund balance from time to time.

Under the revised plan, the employee pays no current income taxes on Company contributions or earnings going into his account. The tax on this portion of the Thrift Fund is deferred until the employee retires, dies, or leaves the employ of the Company; and then the tax liability is at the capital gains rate instead of the ordinary income rate. This feature of the plan will save employees many tax dollars over the years.

Hospital-Surgical-Medical Expense Insurance is not included in the Company-wide benefit program because of the many differences in the several plans already in effect for various employee groups within the Company. These variations in plans are the result of differences in local medical practices and employee requirements. Humble will, however, continue to contribute to the cost of this insurance as it has in the past.

All in all, Humble's objective is to provide a top-notch program of protection in the areas where employees have important needs for financial security. The Company also believes that the employees should have the opportunity to decide for themselves whether they want the various types of security provided through the plans offered. The uniform benefit program helps accomplish both objectives. It is another step forward in a long tradition of good employee-management relations.

Humble Announces Policy on Employee Participation in Public Affairs

The following policy and procedure with respect to employee participation in public affairs was approved by the board of directors of Humble Oil & Refining Company on November 10, 1960, and has been announced through a circular letter signed by Company Secretary L. J. Weigle:

Our Company believes in the participation by all citizens in local, state and national political affairs. In order to encourage such participation by Humble employees, the following Company policy relative thereto has been adopted:

1. An employee engaging in political activity does so as a private citizen and not as a representative of the Company. The Company will not discriminate against an employee because of his identification with any lawful political party or activity.

2. The Company considers that qualifying oneself to vote (by registration or payment of poll tax), voting, serving in civic bodies and keeping informed on political matters are all highly important rights and responsibilities of the citizens of a democracy and therefore are to be encouraged. The right of an individual to contribute financially to the party or candidate of his choice is an important element of our political system. Campaigning for public office and the holding of such office by employees are also recognized as being a part of their rights as citizens, although there may be instances when the position of the Company and the individual employee with relation to a particular office is such that the exercise of these rights might not be advisable.

3. An employee should consult with his supervisor before making himself available for public office, the holding of which might detract from his ability to perform his work assignments.

4. In many cases an employee seeking public office or participating in political party activities will be able to carry out such activity without interfering with his job responsibilities. If, however, this is not possible, he must request the appropriate regular leave of absence.

5. If an employee is elected or appointed to a public office which will demand all or a substantial part of his productive time over an extended period, or which will otherwise substantially detract from his ability to perform his Company assignments, or which may create a conflict of interest which could be eliminated by a special leave of absence, the Company may grant the employee a special leave of absence without pay. (The leave of absence will be granted under conditions outlined in the policy. These details are available on request from Employee Relations representatives.)

6. The policy set forth in this Circular Letter is applicable to all employees of the Company in the United States, whether they are covered or exempt under the Fair Labor Standards Act.

EDITOR'S NOTE: This issue of THE HUMBLE WAY has been delayed in order to include the latest information about the Company's new organization plan. This magazine, formerly published by the Humble Division, is now a company-wide publication of Humble Oil & Refining Company, and will be published once each quarter. The Spring issue is being planned for publication in April. Any employee or annuitant who is not now receiving the magazine may have his name added to the mailing list by writing to The Editor, THE HUMBLE WAY, P. O. Box 2180, Houston 1, Texas.

The Humble Way

Vol. XVI No. 2

OCTOBER-NOVEMBER-DECEMBER, 1960

CONTENTS

Humble's New Organization 1
Other Recent Developments 7
Timber Country Wildcat 10
Humble People Say 14
Awards 16
Employees' Annual Art Exhibit 17
King Ranch Gas Plant 20
Energy Is Our Business 24
Thumping For Oil 28
Humble Adopts Revised Benefit Program 30

HUMBLE OIL & REFINING COMPANY

P. O. Box 2180, HOUSTON 1, TEXAS

BOARD OF DIRECTORS

JOHN W. BRICE — H. W. HAIGHT
MORGAN J. DAVIS — WILLIAM NADEN
H. W. FERGUSON — D. W. RAMSEY, JR.
R. J. GONZALEZ — E. D. REEVES
C. E. REISTLE, JR.

OFFICERS

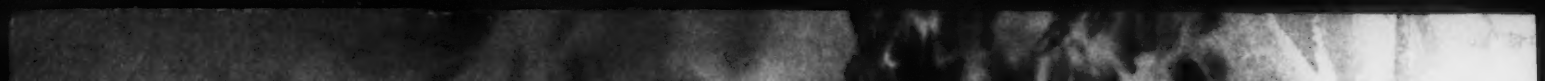
MORGAN J. DAVIS, *President*

Executive Vice Presidents

C. E. REISTLE, JR. — WILLIAM NADEN

Vice Presidents

JOHN W. BRICE — F. A. L. HOLLOWAY — R. J. SCHILTHUIS
W. W. BRYAN — RAY H. HORTON — J. L. SEGER
H. W. FERGUSON — T. W. MOORE — R. H. VENN
M. W. HAAS — H. P. PRESSLER — H. J. VOORHIES
H. W. HAIGHT — D. W. RAMSEY, JR. — J. P. WARNER
E. D. REEVES

NELSON JONES, *General Counsel*
O. L. LUPER, *Controller*
LESTER R. MOORE, *Treasurer*
L. J. WEIGLE, *Secretary*

Near islet in Georgia's Lake Seminole, silhouetted dragline dredges drilling site for Humble wildcat well. The attempt to find the state's first oil or gas was spudded in with a barge rig in December.